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JUL 31 1990

Federal Communications Commission
Office of the Secretary

BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In the Matter of)
)
Amendment of Part 90 of the)
Commission's Rules to Provide)
For More Efficient Utilization)
of the Private Land Mobile)
Frequency Band at 450-470 MHz)

RM- _____

To: The Commission

PETITION FOR RULE MAKING
OF THE
SPECIAL INDUSTRIAL RADIO SERVICE ASSOCIATION, INC.

SPECIAL INDUSTRIAL RADIO SERVICE
ASSOCIATION, INC.

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SUMMARY

In this Petition for Rule Making, the Special Industrial Radio Service Association, Inc. ("SIRSA") seeks allocation of six frequency pairs in the band 450-470 MHz for use by Special Industrial Radio Service eligibles in the states of Iowa, Kansas, Minnesota, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, and Wisconsin. This Petition is filed to address the critical shortage of spectrum below 800 MHz available for use by farmers and other Special Industrial Radio Service eligibles in these states.

In the nine states to which this Petition is addressed, there are a total of 355 million acres devoted to farming activities. These 355 million acres represent 36 percent of the total number of acres dedicated to farmland nationwide. These nine states also account for 45 percent of the annual livestock production for the entire country. With this level of farming activity, the channels previously allocated for Special Industrial use in the frequency bands 150-170 MHz and 450-470 MHz have proved inadequate to meet the demand for frequencies.

Accordingly, this Petition proposes that six frequency pairs allocated to the Local Government Radio Service be made available for Special Industrial use on a co-equal shared basis. This proposal is designed to promote more balanced use of the frequency pairs at issue without substantial disruption to existing and future licensees in the Local Government Radio Service. Due to farmers' predominantly seasonal use of land mobile radio systems, there is a degree of predictability to farm operations that will help to ensure compatibility with other users of the frequencies. And, as noted in the Petition, there are other important factors which will further promote compatibility with licensed Local Government operations.

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To: The Commission

**PETITION FOR RULE MAKING
OF THE
SPECIAL INDUSTRIAL RADIO SERVICE ASSOCIATION, INC.**

The Special Industrial Radio Service Association, Inc. ("SIRSA"), pursuant to Section 1.401 of the Rules and Regulations of the Federal Communications Commission ("Commission"), hereby respectfully submits this Petition for Rule Making ("Petition") to amend Part 90 of the Commission's Rules and Regulations to promote more efficient utilization of the frequency band 450-470 MHz in areas of the country in which the Special Industrial Radio Service frequency allocation is particularly heavily utilized. For the reasons set forth below, SIRSA requests that the Commission initiate a rule making proceeding to allocate six frequency pairs at 450-470 MHz for use by Special Industrial Radio Service eligibles in the states of Iowa, Kansas, Minnesota, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, and Wisconsin.

I. PRELIMINARY STATEMENT

1. The Special Industrial Radio Service Association, Inc., a non-profit association organized under the laws of the District of Columbia, is the Commission's certified frequency coordinator for the Special Industrial Radio Service, the Industrial/Land Transportation 800/900 MHz frequency "pools," the conventional 800 MHz frequency pool (original 150 channels) for Industrial/Land Transportation applicants, and the UHF pools created for Detroit, Cleveland and Buffalo. SIRSA coordinates in excess of 6,000 applications per year on behalf of applicants seeking Commission authority to operate radio stations on frequency assignments allocated to the Special Industrial Radio Service and the enumerated frequency "pools".

2. SIRSA enjoys the support of a membership that includes more than 12,500 licensed radio communication users. Representatives of those licensees serve on SIRSA's Board of Directors along with designees from the following supporting trade associations:

Alliance of Motion Picture & Television Producers
American Iron Ore Association
American Mining Congress
Florida Citrus Processors Association
Hawaiian Sugar Planters' Association

Kansas Ready-Mixed Concrete Association
National Aggregates Association
National Agricultural Aviation Association
National Food Processors Association
National Propane Gas Association
National Ready-Mixed Concrete Association
National Stone Association
National Utility Contractors Association
New England Fuel Institute
Petroleum Equipment Suppliers Association

3. Encouraging the efficient, compatible and balanced use of the electromagnetic spectrum has been a continuing objective of SIRSA since its inception. SIRSA has been the petitioner responsible for initiating many key proceedings that have improved the utility of the spectrum and promoted the use of two-way mobile radio communications in American industry. SIRSA was selected by the Commission as the sole frequency coordinator for the Special Industrial Radio Service in 1986 because of its representativeness, expertise and experience.

II. PETITION FOR RULE MAKING

4. SIRSA believes that the instant Petition for Rule Making identifies a further opportunity to make efficient use of the radio spectrum in a manner that will greatly benefit the public. In recent years, it has become increasingly apparent that the states located in the midwestern region of the United States, especially those

states with a particularly heavy agricultural base, have experienced a critical shortage of VHF and UHF spectrum that is available for use by farmers and other Special Industrial Radio Service eligibles.^{1/}

5. In response to the need for additional frequencies to be used to satisfy Special Industrial Radio Service requirements in Iowa, Kansas, Minnesota, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, and Wisconsin, SIRSA has identified six frequency pairs in the private land mobile radio allocation at 450-470 MHz that are particularly promising candidates for more efficient use in these states. These frequency pairs are 453/458.375 MHz, 453/458.425 MHz, 453/458.475 MHz, 453/458.575 MHz, 453/458.725 MHz, and 453/458.825 MHz.^{2/} In this Petition, SIRSA proposes appropriate changes to Part 90 of the Commission's Rules and Regulations to make these frequency pairs available, in the nine states listed above, to

^{1/} On July 21, 1989, SIRSA filed a Petition for Rule Making with the Commission seeking an allocation, limited to states in the Midwest, of one UHF-TV broadcast channel to be used for Part 90 private land mobile radio systems. This Petition for Rule Making was dismissed by the Office of Chief Engineer because of the potential requirement for additional spectrum for Advanced Television Systems ("ATV").

^{2/} These frequency pairs are allocated to the Local Government Radio Service in accordance with Section 90.17 of the Commission's rules.

entities eligible in the Special Industrial Radio Service, in addition to the current allocation to the Local Government Radio Service.^{3/}

6. The focus of this Petition for Rule Making is simply to introduce a limited and closely circumscribed adjustment in the Commission's rules in recognition of a need that is unique to the agricultural states of the Midwest. SIRSA has specifically fashioned this Petition to address an imbalance, from the perspective of spectrum efficiency, that is a direct consequence of the uniquely monolithic economic mix and peculiar topography of the nine states to which this Petition is addressed. In SIRSA's view, as explained below, the proposed adjustment is both feasible and necessary for precisely the same reason -- the

^{3/} There is ample precedent for the rule amendment proposed in this Petition. At various times, the Commission has adopted changes to its rules to rectify similar regional imbalances in the allocation of private land mobile radio frequencies. For instance, in the frequency band at 150-170 MHz, the Commission's rules permit equal access, in six specified states, to the same channels by entities eligible in the Petroleum, Power and Forest Products Radio Services. In the remaining 44 states, the frequencies are allocated only to the Power Radio Service. See Sections 90.65(c)(14) and (20), 47 C.F.R. 90.65(c)(14) and (20), for example. See also, the Commission's proceedings in Docket No. 21395, in which eight pairs of 450 MHz Taxicab Radio Service frequencies were made available for co-equal use by Forest Radio Service eligibles in the states of Washington, Oregon, Idaho and Montana. First Report and Order, Docket No. 21395, 42 RR 2d 891 (1978).

fact that agribusiness is, by far, the predominant economic activity of the states involved.^{4/}

7. SIRSA's reason for focusing on the six frequency pairs identified above is simply that, in the nine states to which this Petition for Rule Making is directed, these frequencies represent ideal candidates for greater use in a manner that would be particularly compatible with the existing use and without harmful impact on authorized systems.

A. Utilization Data for the 450-470 MHz Special Industrial Frequency Pairs Indicate a Bona Fide Requirement for Additional Channels.

8. Examination of the current utilization data for the 450-470 MHz frequencies allocated to the Special Industrial Radio Service, considered in conjunction with SIRSA's unique understanding of the complexities inherent in

^{4/} In the nine states considered in this Petition for Rule Making, there are a total of 355 million acres devoted to farming activities. This acreage constitutes 36 percent of the total number of acres nationwide that are dedicated to farmland. Collectively, these nine states account for \$16,131,100,000 in annual livestock production, which is 45 percent of the annual livestock production for the entire country. Five of these states (Iowa, Nebraska, Minnesota, Kansas, and Wisconsin) rank among the top ten states in terms of the total amount of crops and livestock marketed annually. (Source: 1989 Statistical Abstract of the United States.)

coordinating 450-470 MHz Special Industrial applications, has caused SIRSA to conclude that these frequencies simply cannot sustain more intensive use in the states of Iowa, Kansas, Minnesota, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, and Wisconsin. As depicted in Appendix II, there is a very heavy concentration of licensed Special Industrial users in these states on the fourteen 450-470 MHz channel pairs available for regular base/mobile operations under Section 90.73. Collectively, for all nine states, there are an average of 163 users licensed on each of the 14 frequency pairs.

B. There Are No Other Practical Alternatives to Satisfy The Requirement For Additional Special Industrial Frequencies.

9. Land mobile users in the Midwestern plains states and, in particular, farmers have found the 800 MHz frequency band to be impractical for satisfying their two-way land mobile radio communications requirements. The plains states afford few naturally elevated locations that can be used for antenna sites. It is a well-established that, unless the 800 MHz frequencies are employed in conjunction with elevated antenna sites, these frequencies cannot provide adequate coverage over an extended service area. Farmers must, of necessity, rely on proven technology

employing frequencies which assure adequate coverage areas.^{5/} As a general matter, applicants in the Special Industrial Radio Service are not positioned to make substantial investments in 800 MHz radio systems. It is particularly impractical for farmers to make large investments in 800 MHz systems when the coverage provided by such systems is inadequate to serve their needs.^{6/}

10. For entirely different considerations, use of the 150-170 MHz frequencies allocated to the Special Industrial Radio Service to satisfy future spectrum needs in the nine states is not a viable option. There are already nearly 12,000 systems licensed in these nine states on the

^{5/} For the nine states under consideration, the average acreage per farm is 889 acres. This compares with an average of 405 acres per farm for the remaining 41 states. Thus, for the nine states encompassed in this Petition, the average farm is more than two times larger than the typical farm in the other 41 states. (Statistics adapted from the 1989 Statistical Abstract of the United States.) In the absence of elevated antenna sites, farmers would have to establish systems employing multiple 800 MHz repeaters in order to provide adequate coverage for the vast expanse of land comprising an average farm in these nine states. To draw a parallel to 800 MHz Specialized Mobile Radio (SMR) systems, the lack of antenna sites useful for 800 MHz transmitters also accounts, in part, for the fact that, by comparison with other states, there are relatively few SMR systems licensed in these nine states.

^{6/} At 800 MHz, the price of a single mobile unit is in the range of \$1,300 to \$1,400, when licensees purchase mobile units in relatively large quantities. The price of a single mobile unit at 450-470 MHz tends to be no more than \$500, on average.

150-170 MHz channel pairs allocated for Special Industrial use.^{7/} The frequencies available to Special Industrial Radio Service eligibles at 150-170 MHz cannot effectively support additional increments of users.^{8/}

11. The interservice sharing provisions of Section 90.176 do not provide relief for the needs identified above. Under the provisions of Section 90.176, Special Industrial Radio Service eligibles are restricted to using the frequencies allocated to other services in the Industrial and Land Transportation categories. Special Industrial applicants are precluded from gaining access to the frequency pairs allocated to those services, such as Local Government, that might otherwise provide meaningful relief. Due to the significant use already being made of the 450-470 MHz channels assigned to other Industrial Radio Services and the Land Transportation Radio Services,

^{7/} By individual state, the number of 150-170 MHz systems authorized in the Special Industrial Radio Service as of June 1990 were as follows: Iowa - 1,710 systems; Kansas - 1,900 systems; Minnesota - 1,601 systems; Montana - 1,030 systems; Nebraska - 1,723 systems; North Dakota - 1,353 systems; Oklahoma - 923 systems; South Dakota - 802 systems; and Wisconsin - 818 systems.

^{8/} It was, in fact, the congestion prevalent in the frequency band 150-170 MHz that precipitated the migration of Special Industrial Radio Service eligibles to the band 450-470 MHz. Because of the practical considerations explained above, further migration to the 800 MHz frequency range is not a useful option.

reliance on the normal workings of the interservice sharing provisions applicable to 450-470 MHz is not a useful alternative.

C. The Proposed Use Is Carefully Limited In Terms of Both the Scope of the Proposal and the Number of Frequencies.

12. This Petition proposes that, out of the more than 30 frequency pairs now available for Local Government Radio Service use at 450-470 MHz, six of these frequency pairs be made available for concurrent use by Special Industrial Radio Service eligibles in the nine states under discussion. SIRSA has made a concerted effort to limit its proposal, in terms of both the number of states affected as well as the number of frequencies involved, to the parameters necessary to satisfy the need for additional frequencies. In the discussion which follows, SIRSA examines individually the frequency pairs which are the subject of this Petition and provides relevant information regarding current utilization.

a. Frequency Pair 453.375 MHz/458.375 MHz

At present, for the nine states under consideration, there is a total of

sixteen authorized users in the Local Government Radio Service.

b. Frequency Pair 453.425 MHz/458.425 MHz

For the nine states involved, a total of eighteen Local Government users are currently authorized.

c. Frequency Pair 453.475 MHz/458.475 MHz

A total of eighteen users are currently authorized in the Local Government Service for the nine states.

d. Frequency Pair 453.575 MHz/458.575 MHz

There are fifteen authorized Local Government Radio Service users in the nine states.

e. Frequency Pair 453.725 MHz/458.725 MHz

There are thirteen authorized Local Government Radio Service users in the nine states.

f. Frequency Pair 453.825 MHz/458.825 MHz

There are twenty-four authorized
Local Government Radio Service
users in the nine states.

13. The statistics presented above, and which appear in greater detail in Appendix III, point up the imbalance which has developed within the nine states under consideration. The collective number of currently authorized users on these six frequency pairs for the nine states ranges from 13 to 24. In contrast, licensees operating on the 450-470 MHz channels allocated to the Special Industrial Radio Service typically have to contend with 13 or more co-channel users within a single state.

14. SIRSA hastens to point out that the usage statistics that have emerged over time for these nine states are not representative of the utilization of Local Government Radio Service frequencies in other regions of the country. Therefore, the proposal advanced in this Petition would likely not be appropriate for other states. However, for the nine predominantly agricultural states included in this Petition, the proposal presents a useful mechanism for rectifying the imbalance that has developed. As depicted in Appendix III, there are a number of other Local Government

Radio Service frequency pairs in the nine states under consideration that are available to absorb other users. Accordingly, the Commission would be able to implement SIRSA's proposal without substantial disruption to, or adverse effect upon, existing and future users of the spectrum.

D. The Proposed Use is Limited in Other Important Respects As Well.

15. As noted above, the proposal encompasses only nine states. These states are predominantly rural in nature. The rural nature of these states will serve to ensure that there will not be the rigorous two-way operations of a continuous nature that tend to be characteristic of urbanized, densely populated areas.

16. To eliminate the possibility of adverse impact to major metropolitan areas, SIRSA proposes that the use of the frequency pairs under discussion be precluded within 20 miles of the following cities: Minneapolis, Minnesota; Milwaukee, Wisconsin; Madison, Wisconsin; Oklahoma City, Oklahoma; Tulsa, Oklahoma and Kansas City, Kansas. A proposed rule to accomplish this exception has been provided as part of the implementing regulations shown at Appendix I. Therefore, local government communications systems either

currently in operation or being planned for the future within major metropolitan areas will not face additional co-channel or adjacent channel use by entities other than local government eligibles.

E. Factors Unique to the Operations of Farmers Will Help to Ensure Compatibility With Existing Users of the Channels Involved.

17. As noted above, agribusiness is the primary economic activity of the states being considered in this Petition. This fact, in itself, serves to ensure that the proposed use will be compatible with existing and future local government operations. First, there will not be an abundance of non-agricultural operations on the channels involved. Second, for typical agricultural-related operations, there are two periods of peak use -- in the spring, when crops are planted, and during the fall harvest. At all other times, when normal conditions prevail, the requirement for two-way communications capability is of a more moderate nature.

18. SIRSA notes that, because of the predominantly seasonal use of land mobile radio systems for agricultural purposes, there is a degree of predictability to farm operations that is not present with other business

activities. This predictability is yet another factor that will help to ensure compatibility with Local Government Radio Service operations. Further, all applications prepared by Special Industrial Radio Service eligibles pursuant to this proposal would be coordinated by SIRSA prior to the filing of the applications with the Commission. In its role as frequency coordinator, SIRSA will use its resources and expertise to select the frequencies that are most compatible with existing operations.

F. Viewed From the Perspective of Spectrum Efficiency, The Limited Use Proposed in this Petition Will Remedy the Current Imbalance.

19. SIRSA concludes that the instant proposal will help to compensate for the current imbalance in use and promote spectrum efficiency, without overwhelming existing and future licensees in the Local Government Service. In keeping with SIRSA's intent of providing more balanced use without harmful consequences to any other services, this proposal incorporates five essential features that will closely circumscribe the impact of the proposed allocation:

- (1) The Petition is limited to only nine states;

- (2) The Petition seeks the allocation, on a shared basis, of only six frequency pairs for Special Industrial use;
- (3) The Petition involves predominantly rural states having agricultural-based economies;
- (4) The Petition seeks to accommodate operational requirements in which the periods of peak usage are confined to limited periods in the spring and fall seasons;
- (5) The Petition incorporates a 20-mile protective ring surrounding the major urban areas in the states included within the proposal.

20. For the reasons stated above, SIRSA is proposing that the six frequency pairs identified above be allocated for use in the Special Industrial Radio Service, concurrently with the existing allocation under Section 90.17. With the implementation of this proposed change, the Commission could help to address the pressing need for Special Industrial frequencies pairs below 800 MHz without adverse impact on other segments of the Commission's licensees.

21. Additionally, SIRSA would suggest that, for those locations within the nine states which fall north of Line A, the same procedures which currently apply to Canadian coordination (as discussed in Section 90.119 and elsewhere in the Commission's rules) would apply.

22. SIRSA believes that the public interest would be served by allocating additional 450-470 MHz channels to the Special Industrial Radio Service as proposed above. SIRSA therefore respectfully requests that the Commission proceed to initiate the preliminary administrative measures necessary to pave the way for issuance of a formal Commission proposal on this matter.

III. CONCLUSION

23. The current allocation of spectrum at 450 MHz has proved inadequate to meet the land mobile radio needs of the farming community and other Special Industrial Radio Service eligible entities in the states of Iowa, Kansas, Minnesota, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, and Wisconsin. There is a compelling need for additional frequencies to satisfy the communications requirements of these entities. SIRSA believes that the

public interest would be served by the allocation for Special Industrial use, in these states, of six frequency pairs now allocated exclusively to the Local Government Radio Service.

WHEREFORE, THE PREMISES CONSIDERED, the Special Industrial Radio Service Association, Inc. respectfully urges the Federal Communications Commission to grant this Petition for Rule Making and institute a rule making proceeding consistent with the proposal set forth herein.

Respectfully submitted,

**SPECIAL INDUSTRIAL RADIO SERVICE
ASSOCIATION, INC.**

By 

Mark E. Crosby
President and Managing
Director

APPENDICES:

- I. Proposed Rule Changes
- II. Special Industrial Radio Service Authorized Users
- III. Local Government Radio Service Authorized Users

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APPENDIX I

IT IS PROPOSED THAT PART 90 OF THE COMMISSION'S RULES AND REGULATIONS BE AMENDED AS FOLLOWS:

1. Section 90.17 of the Commission's rules is amended by adding an additional limitation (28) to the Frequency Table for the Local Government Radio Service as indicated.

§ 90.17 Local Government Radio Service.

* * * *

(b) Frequencies available. * * *

LOCAL GOVERNMENT RADIO SERVICE FREQUENCY TABLE

Frequency or band	Class of station(s)	Limitations
* * * *	* * * *	*
453.350do.....	12
453.375do.....	28
453.400do.....	12
453.425do.....	28
453.450do.....	12
453.475do.....	28
453.500do.....	12
* * * *	* * * *	*
453.550do.....	12
453.575do.....	28
453.600	Base or mobile ...	12
* * * *	* * * *	*
453.700do.....	12
453.725do.....	28
453.750do.....	12
453.775do.....
453.800do.....	12
453.825do.....	28
453.850do.....	12
* * * *	* * * *	*

**LOCAL GOVERNMENT RADIO SERVICE
FREQUENCY TABLE**

Frequency or band	Class of station(s)	Limitations
458.350do.....	12
458.375do.....	28
458.400do.....	12
458.425do.....	28
458.450do.....	12
458.475do.....	28
458.500do.....	12
*	* * *	*
458.550do.....	12
458.575do.....	28
458.600do.....	12
*	* * *	*
458.700do.....	12
458.725do.....	28
458.750do.....	12
458.775do.....
458.800do.....	12
458.825do.....	28
458.850do.....	12
*	* * *	*

(c) * * *

(28) This frequency is shared with the Special Industrial Radio Service, and is available for assignment in that service only in the States of Iowa, Kansas, Minnesota, Montana, Nebraska, North Dakota, Oklahoma, South Dakota and Wisconsin. This frequency is not available for assignment in the Special Industrial Radio Service within 20 miles of the center of the following cities: Minneapolis, Minnesota; Milwaukee, Wisconsin; Madison, Wisconsin; Oklahoma City, Oklahoma; Tulsa, Oklahoma; and Kansas City, Kansas.

* * * *

APPENDIX I

2. Section 90.73 of the Commission's rules is amended by adding additional frequencies to the Frequency Table for the Special Industrial Radio Service as indicated.

§ 90.73 Special Industrial Radio Service.

* * * *

(c) Frequencies available. * * *

SPECIAL INDUSTRIAL RADIO SERVICE FREQUENCY TABLE

Frequency or band	Class of station(s)	Limitations
*	* * *	*
452.175do.....	2
453.375do.....	2, 37
453.425do.....	2, 37
453.475do.....	2, 37
453.575do.....	2, 37
453.725do.....	2, 37
453.825do.....	2, 37
456.725Mobile.....	2
*	* * *	*
457.175do.....	2
458.375do.....	2, 37
458.425do.....	2, 37
458.475do.....	2, 37
458.575do.....	2, 37
458.725do.....	2, 37
458.825do.....	2, 37
470 to 512	Base or mobile....	20
*	* * *	*